



Five-Year Review Report

King of Prussia Superfund Site

Winslow Township, Camden County, New Jersey



Prepared by:

U.S. Environmental Protection Agency
Region II
New York, New York

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Executive Summary

The remedy for the King of Prussia Superfund Site (Site) located in Winslow Township, New Jersey included the removal of tankers, buried drums and contaminated soil, the remediation of soil using a multi-phase soil washing process and the construction of a groundwater recovery and treatment system to treat contaminated groundwater. The removal of the tankers, drums and soils was completed in 1994. The soil washing process was also completed in 1994. Construction of the groundwater treatment plant was completed in September 1995. Contaminated groundwater is currently extracted, and treated water is re-injected into the aquifer beneath the Site. The remedy includes an operation and maintenance program to assess system performance over time. As with any groundwater remedy, adjustments and/or modifications are periodically made to improve system efficiency and effectiveness. The trigger for this third five-year review was the completion of the second five-year review in September 2005.

The assessment of this third five-year review found that the remedy was constructed in accordance with the requirements of the decision documents. The remedy is functioning as intended. The immediate threats have been addressed and the remedy is expected to be protective when groundwater cleanup goals are achieved.

Five-Year Review Summary Form

SITE IDENTIFICATION		
Site Name (from WasteLAN): King of Prussia Superfund Site		
EPA ID (from WasteLAN): NJD98050341		
Region: 2	State: NJ	City/County: Winslow Township/Camden County
SITE STATUS		
NPL Status: <input checked="" type="checkbox"/> Final <input type="checkbox"/> Deleted <input type="checkbox"/> Other (Specify)		
Remediation Status (choose all apply): <input type="checkbox"/> Under Construction <input checked="" type="checkbox"/> Constructed <input checked="" type="checkbox"/> Operating		
Multiple OUs? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Construction Completion Date : 8/30/1995		
Has Site been put into reuse? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A		
REVIEW STATUS		
Lead Agency: <input checked="" type="checkbox"/> EPA <input type="checkbox"/> State <input type="checkbox"/> Tribe <input type="checkbox"/> Other Federal Agency		
Author Name: Trevor Anderson		
Author Title: Remedial Project Manager		Author Affiliation: EPA
Review Period: 09/29/2005 to 09/29/2010		
Date(s) of Site Inspection: 04/06/2010		
Type of Review: <input checked="" type="checkbox"/> Post-SARA <input type="checkbox"/> Pre-SARA <input type="checkbox"/> NPL-Removal <input type="checkbox"/> Non-NPL Removal Action Site <input type="checkbox"/> NPL State/Tribe-lead <input type="checkbox"/> Regional Discretion <input type="checkbox"/> Statutory <input checked="" type="checkbox"/> Policy		
Review number: <input type="checkbox"/> 1 (first) <input type="checkbox"/> 2 (third) <input checked="" type="checkbox"/> 3 (third) <input type="checkbox"/> Other (specify) _____		
Triggering action: <div style="display: flex; justify-content: space-between;"> <div> <input type="checkbox"/> Actual RA On-Site Construction at OU# _____ <input type="checkbox"/> Construction Completion <input type="checkbox"/> Other (specify) _____ </div> <div> <input type="checkbox"/> Actual RA Start at OU# _____ <input checked="" type="checkbox"/> Previous Five-Year Review Report </div> </div>		
Triggering action date (from WasteLAN): 09/29/2005		
Due date (five years after action date): 09/29/2010		
Does the report include recommendation(s) and follow-up action(s)? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no Is the remedy protective of the environment? <input checked="" type="checkbox"/> yes <input type="checkbox"/> no		

Five-Year Review Summary Form (continued)

Issues, Recommendation, and Follow-up Actions

This report did not identify any issue or make any recommendation for the protection of human health and/or the environment which was not included or anticipated by the Site decision documents. EPA and the potentially responsible parties have been working together to optimize the ongoing groundwater cleanup (OU3) and those efforts are expected to continue. There are no new recommendations or follow-up actions associated with this review.

Protectiveness Statement

The remedies implemented for all OUs at the King of Prussia Superfund Site are protective of human health and the environment. Exposure pathways with unacceptable risks have been interrupted and no exposures to the Site contaminants are expected as long as the engineering and access controls discussed in this report continue to be properly operated, monitored, and maintained.

Five-Year Review Report

I. Introduction

This third five-year review for the King of Prussia Technical Corporation Superfund Site (Site), located in Winslow Township, Camden County, New Jersey, was conducted by the United States Environmental Protection Agency's (EPA's) Remedial Project Manager (RPM), Trevor Anderson. This review covers the period from September 2005 to September 2010. The five-year review was conducted in accordance with the Comprehensive Five-Year Review Guidance, OSWER Directive 9355.7-03B-P (June 2001). In accordance with Section 1.2.2 of the five-year review guidance, this five-year review is a matter of policy rather than a statutory requirement. The purpose of five-year reviews is to assure that implemented remedies protect human health and the environment and that they are functioning as intended by the decision documents. This report will become part of the Site file. Reports pertinent to this five-year review are listed in the references section of the report.

The remediation of the Site has been accomplished through construction activities based on two Records of Decision (RODs) and removal actions performed by both EPA and the potentially responsible parties (PRPs). Subsequent to the 1990 ROD, to facilitate remedial activities, EPA divided the cleanup into three phases, or operable units. Operable Unit 1 addresses the metals-contaminated soils and sludges, Operable Unit 2 addresses the residually-contaminated soils within the Former Buried Drum Area, and Operable Unit 3 addresses the groundwater plume originating from the Site. On April 15, 1991, EPA issued an Administrative Order (the Order) to direct a group of five PRPs to complete the remedial activities described in the September 1990 ROD.

This is the third five-year review for the King of Prussia Technical Corporation Superfund Site. This third five-year review found that the Site remedies continue to be protective of public health and the environment and that the long-term OU-3 remedy is functioning effectively. The triggering action for this review is the completion of the second five-year review on September 29, 2005.

II. Site Chronology

Table 1 (attached) summarizes the site-related events from discovery to the first five-year review.

III. Background

Physical Characteristics

The King of Prussia Superfund Site (Site) is identified as Block 8801, Lot 1.01 on the tax map of Winslow Township, Camden County, New Jersey. It encompasses approximately 23 acres of undeveloped land. A groundwater treatment facility occupies 10 acres of this land and it is surrounded by a security fence (See Figures 1 and 2). The Site is located approximately 30 miles

northeast of Philadelphia, Pennsylvania and 25 miles northwest of Atlantic City, New Jersey. The Atlantic City Expressway and U.S. Route 322 (Black Horse Pike) are located approximately two miles northeast and southeast of the Site, respectively. The Great Egg Harbor River flows in a southeasterly direction approximately 1,000 feet southwest of the Site. Two facilities, the South Jersey Shooting Club and the Enterprise Network Resolutions Contracting, LLC, are located across the street from the Site. Network Resolutions Contracting (ENR), a contractor for the PRPs, operates and maintains the groundwater treatment facility. The Great Egg Harbor River serves as the boundary between Camden and Gloucester Counties.

Site Geology/Hydrogeology

The Site surface topography descends gently to the east toward a small drainage swale. The swale, which is located in the southwestern border of the property, directs Site runoff to the Great Egg Harbor River. Vegetation on the Site is sparse, consisting for the most part of scattered patches of low-lying grasses, mixed herbaceous plants indigenous to the Pineland Region, and Phragmites. The rectangular-shaped Site property is bordered on three sides by dense pine forest of the state-owned, 6,000-acre Winslow Wildlife Management Area.

The Site is underlain by unconsolidated Coastal Plain sediment of the Tertiary and Cretaceous age. This sediment consists of unconsolidated sands, gravels and clays which form a southeastern thickening wedge approximately 2,000 feet thick. Underlying this sediment is the relatively low permeability metamorphic bedrock.

The Cohansey Sand crops out at the Site. The formation consists of unconsolidated sand, silts, and clays. The Cohansey is underlain by the Kirkwood Formation, which is underlain by the Piney Point Formation, which is the youngest of several geology units that comprise a composite confining bed.

The Cohansey Sand, the Kirkwood Formation, and any younger overlying sediment are collectively known in this area as the Kirkwood-Cohansey Aquifer System. Due to the absence of extensive regional confining beds, the Cohansey Sand and underlying Kirkwood Formation are hydraulically connected. Regionally, the Kirkwood-Cohansey is a water table aquifer.

Two aquifers within the Kirkwood-Cohansey aquifer system were identified at the KOP Site. The upper aquifer begins at 15 feet below the surface and extends to approximately 35 feet. A second aquifer extends downward from 50 feet below the surface to a depth of approximately 250 feet. A 10-foot to 20-foot semi-confining layer separates the two porous and permeable aquifers.

Groundwater at the Site flows in a southwest direction toward the Great Egg Harbor River. High porosity and permeability of the on-site soils produces rapid infiltration of precipitation and rapid recharge of the underlying Kirkwood-Cohansey aquifer. Lateral groundwater flow in the upper aquifer is approximately one foot per day and 0.4 foot per day in the lower aquifer. The upper aquifer discharges to the Great Harbor River while the deeper aquifer may have a minor flow component that also discharges to the river.

The Great Egg Harbor River, located approximately 1,000 feet southwest of the Site, runs in an easterly direction through Camden County and through all of Atlantic County. The river discharges to the Atlantic Ocean north of Ocean City, New Jersey.

There are no residential wells in the vicinity of the Site. Two wells, which are not being used for potable water supplies, are located within a half-mile radius of the Site. These wells are located on the ENR facility located across from the Site on Piney Hollow Road.

Land and Resource Use:

The Site lies in a rural area characterized by agricultural land use and sparse population. The state-owned Winslow Wildlife Management Area occupies land immediately adjacent to the southwest and northeast of the Site and is primarily used for recreational purposes. The nearest residence is a single family home approximately one mile northeast (up-gradient) of the Site.

History of Contamination:

On July 1, 1970, the King of Prussia Technical (KOP) Corporation presented a proposal to the Winslow Township Committee for the KOP Corporation to purchase a tract of land owned by the township for the purpose of constructing a waste recycling facility. The proposal was subsequently approved by the township and operations at the Site began by January 1971.

Six lagoons were used to process liquid industrial waste. The stated intention by the KOP Corporation was to convert these wastes to materials that would be marketed as construction materials and other uses. However, the KOP Corporation was unable to market these materials and soon had accumulated more waste at the Site than it could process and sell. A minimum of 15 million gallons of acids and alkaline aqueous waste were processed at the facility when KOP Corporation was the operator, with excess materials transported to other disposal locations.

The KOP Corporation filed for bankruptcy on April 8, 1974. Prior to declaring bankruptcy, KOP Corporation sold its hauling operation to Evor Phillips Incorporated which subsequently purchased the Site property. It is believed that operations ceased and the Site was abandoned in late 1973 to early 1974. In 1976, Winslow Township foreclosed on the property for failure of Evor Phillips Incorporated to pay taxes, and the township resumed ownership of the property. The township is the current owner of the property. Illegal dumping of trash and hazardous materials is suspected, as the Site was easily accessible until a fence was installed by the potentially responsible parties in 1988.

Initial Response:

The New Jersey Department of Environmental Protection (NJDEP) was first notified of possible unauthorized activities at the Site in January 1975. Subsequent inspections by NJDEP and a groundwater study by Geraghty and Miller in 1976 indicated contamination of the soils and

groundwater at the Site. EPA confirmed contamination with additional sampling and investigations during 1979, 1980 and 1982. In December 1985, the Site was placed on the National Priorities List (NPL). In July 1988, at the request of EPA, the PRPs installed a fence around the Site property to restrict access and prevent health risks associated with direct contact and prevent illegal dumping.

In September 1990, EPA completed the excavation and recycling/disposal of 120 plastic containers, 159 tons of heavy metal-contaminated soil and 150 gallons of acid. In November 1991, EPA excavated and disposed of 200 rusted steel drums and 235 plastic carboys containing acids and organic liquids within the portion of the Site designated as the Buried Drum Area (now known as the Former Buried Drum Area). The disposal of two rusted steel tankers was completed in August 1991. In March 1994, a groundwater Classification Exception Area (CEA) was established by the NJDEP to restrict the construction of drinking water wells within any areas of the contaminated plume. Since the Site is located in the Pinelands, the Pinelands Commission has regulations in place to restrict the construction of wells and other facilities in the Pinelands.

Basis for Taking Action:

In April 1985, EPA entered into an Administrative Order on Consent (AOC) with five PRPs to conduct a Remedial Investigation and Feasibility Study (RI/FS). In December 1985, the Site was formally listed on the NPL.

The RI was completed by the PRPs in July 1989. The FS, also completed by the PRPs, was released by EPA in July 1990. The FS provided several alternatives for addressing the contamination found at the Site. In August 1990, EPA issued a Supplemental Feasibility Study (SFS) to clarify and explain alternatives not sufficiently addressed in the July 1990 FS.

The RI/FS concluded that the groundwater, soil, and the buried drum area at the Site were contaminated with significant levels of organic and inorganic contaminants.

Contaminants:

Inorganic substances that have been detected in the groundwater and the soil at the Site include:

Beryllium	Cadmium	Chromium	Copper
Mercury	Nickel	Zinc	

Organic substances that have been detected in the groundwater and the soil at the Site include:

Benzene	1,1-Dichloroethane	Trans-1, 2-Dichloroethene
Ethylbenzene	Tetrachloroethene	1, 1, 2, 2-Tetrachloroethane
Trichloroethene	1, 1, 1-trichloroethane	Toluene

Potential unacceptable cancer and non cancer risks at the Site were determined in the ROD to primarily result from potential use of contaminated groundwater, although there are no users of the groundwater in the proximity of the Site. The further migration of these contaminants to

potable water supplies, the river, and to unaffected areas of the Site would significantly impact human health and the environment.

IV. Remedial Actions

Remedy Selection

The remediation of the Site has been accomplished through construction activities based on two Records of Decision and removal actions performed by both EPA and the PRPs. Subsequent to the 1990 ROD, to facilitate remedial activities, EPA divided the cleanup into three phases, or operable units. The Remedial Action Objectives (RAOs) for each phase of the cleanup are described below:

Soils, Sediment, and Lagoon Sludges (RAOs):

- Mitigate soil and swale sediment contamination such that Site-specific soil cleanup levels, as developed in the FS, are met;
- Mitigate soil and swale sediment contamination such that exposures which may result in unacceptable human health risk are eliminated;
- Mitigate soil and swale sediment contamination such that these media do not leach contaminants that would cause an exceedance of any maximum contaminant level (MCL) in the groundwater.

Groundwater (RAOs):

- Mitigate the groundwater contamination such that no unacceptable levels of contaminants migrate to the Great Egg Harbor River;
- Mitigate the groundwater contamination such that Applicable or Relevant and Appropriate Requirements (ARARs) are met;
- Mitigate the groundwater contamination such that no unacceptable risk to human can occur.

Tankers and Buried Drum Area (RAOs):

- Remediate the tankers and buried drum area such that site-specific-based human health risk assessment cleanup goals are met for residential exposure to soil;
- Remediate the tankers and buried drum area such that any potential human health risk associated with the residual wastes in the tankers is eliminated;
- Remediate the tankers and buried drum area such that no further source materials are

present in the drum area which might be released to the groundwater.

EPA performed several removal actions at the Site to address the contamination found in the buried drums areas. These removal actions included: the excavation and recycling/disposal of 120 plastic containers, 159 tons of heavy metal-contaminated soil and 150 gallons of acid (completed in September 1990); the excavation and off-site disposal of 200 rusted steel drums and 235 plastic carboys containing acids and organic liquids within the portion of the Site designated as the Former Buried Drum Area (completed in November 1991); and the disposal of the two rusted steel tankers (completed in August 1991). The PRPs performed a removal action which included the removal of approximately 783 tons of soils contaminated with volatile organic compounds from the Former Buried Drum Area (completed in 1994).

Also, on September 28, 1990, EPA issued a ROD to address the soil contamination, the contamination found in the tankers and buried drums areas of the Site, the groundwater contamination, and to characterize the surface water and sediments of the Great Egg Harbor River. The major components of the ROD are described below:

- Excavation, removal and treatment through a multi-phased soil washing process of lagoon sludges, associated soils, and sediments in the swale. The excavated areas were to be backfilled with the treated soils.
- Excavation and off-site disposal of buried drums, their contents and associated visibly contaminated soils. In addition, residually-contaminated soils were to be characterized in order for the Agency to make a determination as to the need for further remedial action.
- Construction of an on-site groundwater extraction, treatment and reinjection system to address the contaminated groundwater.
- Removal of tankers and their contents for off-site disposal.
- Additional characterization of surface waters and sediments in the Great Egg Harbor River in order for the Agency to make a determination as to the need for further remedial action.

As stated previously, the remediation of the Site was divided into three phases, or operable units. Operable Unit 1 addresses the metals-contaminated soils and sludges, Operable Unit 2 addresses the residually-contaminated soils within the Former Buried Drum Area, and Operable Unit 3 addresses the groundwater plume originating from the Site. On April 15, 1991, EPA issued an Administrative Order (the Order) to direct a group of five PRPs to complete the remedial activities described in the September 1990 ROD.

Construction activities for each Operable Unit are described below.

Remedy Implementation

Operable Unit 1

The remediation of the former lagoon soils using a multi-phased soil washing technology was performed by the PRPs, with EPA oversight. The remedial design (RD) for this portion of the remedy was completed in January 1993 by Alternative Remedial Technologies (ART), the PRPs' contractor. The RD was performed on an expedited basis and included the shipment of 165 tons of contaminated soils to the Netherlands for treatment in an existing soil washing facility. Based on the success of that operation, a similar treatment plant was designed for the Site.

The PRPs awarded ART the contract to construct the soil washing plant. Construction of the soil washing plant on-site began in April 1993. Remedial activities were conducted as planned, and no additional areas of soil contamination were identified. EPA and NJDEP conducted a pre-final inspection on June 30, 1993. In a memorandum dated July 19, 1994, EPA approved the final Remedial Action (RA) Report for Operable Unit 1 (OU1). OU1 RA activities are fully described in the RA Report and are summarized below:

- In June 1993, a one-week pilot run was performed on approximately 1,000 tons of contaminated soils.
- Full scale operations commenced on June 28, 1993 and lasted until October 11, 1993.
- Data collected during full scale operations by both the PRPs and EPA verified that the remediation system operated and functioned in accordance with the requirements specified in the ROD, Administrative Order, and Final Remedial Design Report.
- In all, 19,200 tons of metals-contaminated soils and sludges were successfully treated to meet the established remediation goals set forth in EPA's September 1990 ROD. Soils meeting the established treatment goals were backfilled on-site.

OU1 also included the removal of tankers and their contents for off-Site disposal and remediation of soils in and associated with the former lagoons which were contaminated with inorganic compounds including chromium, copper, nickel, zinc and beryllium.

The contents of the two rusting tankers were analyzed. The major contaminants of concern in the tankers were chromium (6,580 parts per million [ppm]), copper (10,080 ppm), and nickel (6,450 ppm). In 1991, EPA removed the tankers and their contents from the Site as part of a removal action.

Operable Unit 2

Operable Unit 2 (OU2) addressed the residually-contaminated soils associated with the area of the

Site referred to as the Former Buried Drum Area. In 1991, EPA excavated and disposed of the 200 buried drums as well as 235 plastic carboys containing acids and organic liquids within the Former Buried Drum Area. Following the removal of the drums, soil samples collected from the Former Buried Drum Area indicated that the remaining soils were contaminated with elevated levels of tetrachloroethylene (PCE), xylenes, 1,2-dichlorobenzene, and 1,4-dichlorobenzene. In June 1993, EPA issued a Risk Assessment Report which concluded that the contaminants in the Former Buried Drum area soils posed a threat to potential future residents and the groundwater underlying the Site. The report established risk-based cleanup numbers for the contaminated soil. In 1993, EPA issued a Focused Feasibility Study (FFS) to address the contaminated soils located in the former lagoons area.

In September 1993, EPA issued an Action Memorandum for the excavation and disposal of the soil from the Former Buried Drum Area. The PRPs began the removal action activities in November 1993. Approximately 556 tons of soils that were characterized through testing as non-hazardous waste were disposed of at GROWS Landfill facility in Morrisville, Pennsylvania. Approximately 277 tons of soils containing hazardous waste material were disposed of at the Chemical Waste Management's Landfill in Model City, New York. The excavated area was backfilled with clean soil. The PRPs completed the removal action in February 1994. Post-excavation sampling of the areas indicated that soil in the Former Drum Area met the established cleanup goals and were no longer a threat to human health or the environment and the groundwater.

On September 27, 1995, EPA issued a No Further Action ROD for the Former Drum Area. The ROD documented all activities associated with the removal action and set forth EPA's decision not to take any additional action in the Former Drum Area.

Operable Unit 3

Operable Unit Three (OU3) is being performed by the PRPs under the terms of the April 1991 Administrative Order. OU3 includes the design and construction of a groundwater extraction, treatment and reinjection system as specified in the 1990 ROD.

The selected remedy for the Site established cleanup levels for the contaminants in groundwater based on risk to human health. The remedy was selected to eliminate the principal threat posed to human health and the environment by extracting groundwater, which is contaminated with volatile organic and inorganic contaminants, and treating the water to health-based cleanup levels.

The design of the extraction, treatment and reinjection system was completed by the PRPs and approved by EPA on July 22, 1994. Remedial Action construction completion was achieved in September 1995 and documented in a Preliminary Close-Out Report. The system began treating contaminated water in 1995. The original groundwater treatment system consisted of eleven recovery wells, which could extract the contaminated groundwater at a combined rate of 200 gallons per minute, or about 280,000 gallons per day; monitoring wells to monitor the progress of the remedy; electrochemical cells to remove the metals; and two air strippers with carbon polishing to remove the volatile organic compounds (VOCs). In addition, five on-Site infiltration trenches

and ten infiltration galleries are used to re-inject the treated water into the aquifer through perforated manholes. The infiltration galleries are located outside the fence and adjacent to the river.

Currently, seven of the eleven recovery wells are still operating at the Site. These wells include shallow wells R-1S through R-6S and intermediate well R-8I. Four recovery wells (intermediate wells R-9I and R-11I, and deep wells R-7D and R-11D) were shut down in 2000. The concentrations of VOCs and metals in these four wells were detected below cleanup levels. The seven recovery wells are extracting groundwater at a rate of between 95 and 110 gallons per minutes (gpm) or approximately 144,000 gallons per day.

From the recovery wells, the groundwater flows into an influent holding tank where the pH is adjusted to 10.5 to allow the metal to precipitate out of the groundwater. The groundwater is then gravity fed into a clarifier where ferric chloride and anionic poly-acrylamide polymer are added to facilitate further removal of metals. The electrochemical cells, which were originally used to remove iron from the groundwater, were replaced with the ferric chloride addition. In 2003, the PRPs decided to replace the cells because of their high operating cost and high maintenance.

After the clarifier, the water is passed through a multi-media filter where any remaining particles are removed. The water is then pumped to the 220 gpm air stripper for VOC removal. The second air stripper with a flow-rate of 40 gpm and the carbon polishing unit were removed from the treatment process in 1996. The 40 gpm air stripper and carbon polishing unit were installed primarily for the purposes of accommodating any unexpected and sudden increases in VOC concentrations or flow rates to the treatment plant during the initial startup and operation of the plant.

After treatment, the groundwater is sampled monthly as required by the New Jersey Department of Environmental Protection discharge permit to ensure that effluent limits are being met. The water is then pumped into infiltration galleries and trenches. The infiltration trenches allow direct reinjection of the treated water into the aquifer. From the infiltration galleries, the treated water enters perforated manholes where the water is reinjected into the aquifer. The reinjection scenarios were designed to contain the groundwater plume and prevent the migration of contaminants from the Site into the Great Egg Harbor River. The PRPs are required to submit quarterly groundwater monitoring to EPA.

This remedial action will continue until the groundwater meets the drinking water standards.

System Operations/Operation and Maintenance (O&M):

The removal and remedial actions which took place at the Site between 1990 and 1993 reduced the levels of the soil contamination to meet cleanup goals. The groundwater contamination remains above applicable standards and O&M activities are conducted to reduce the groundwater contamination at the Site.

The PRPs through their consultants, ENR and Roux Associates, have been operating the

groundwater extraction and treatment system under EPA oversight since 1995. The Operation and Maintenance (O&M) Plan, developed by the PRPs, was finalized in September 1994. The O&M Plan conforms to the requirements set forth in the New Jersey Discharge Elimination System/Discharge to Groundwater Permit Equivalent and the Pinelands Comprehensive Management Plan.

Groundwater monitoring is performed to ensure that the groundwater remedy continues to be effective in capturing the contaminated plume and preventing the migration of the contaminated groundwater to the Great Egg Harbor River. A network of wells is monitored quarterly for groundwater quality (see Figure 3). In addition, the entire groundwater treatment system undergoes routine maintenance, as necessary, to ensure that the plant will continue to treat the contaminated groundwater to meet applicable State and Federal groundwater standards. The Monitoring Plan also requires that three surface water samples from the Great Egg Harbor River be collected annually and analyzed for VOCs and metals to evaluate the impact of groundwater discharge to the river.

Based on the treated groundwater data presented in the April and May 2010 groundwater quarterly monitoring reports for the Site, 1, 1, 2, 2-tetrachloroethane (1,1,2,2-PCA), tetrachloroethene (PCE), and trichloroethene (TCE) were detected in the discharge effluent at concentrations above their respective ROD limits. The exceedances were attributed to a malfunction in the air stripper. This problem was corrected after both the air stripper and effluent holding tank were cleaned. The subsequent monitoring report in June 2010 indicates non-detect for these contaminants of concern. In April 2010, the monitoring indicated that beryllium (Be) marginally exceeded the discharge criteria. The PRPs improved the effectiveness of the metals precipitation, flocculation, clarification, and filtration unit processes to minimize beryllium and other metals concentrations in the system effluent and this effort was completed in June 2010 (prior to the June effluent sampling date), and the effluent data indicate that these efforts were successful. Since its completion, the groundwater treatment plant has treated over 729.1 million gallons of water and removed more than 1.27 tons of VOCs and 5.6 tons of metals.

O&M costs include costs for extraction and treatment of the contaminated groundwater as well as groundwater sampling and testing. Other costs include utilities, the disposal of materials, polymer solution purchases, laboratory costs, and plant operation. The total O&M cost for the period between 2005 and 2010 is estimated to be \$2,585,000. The average annual O&M cost for the same period is estimated at \$517,000. The O&M costs for these years are contained in Table 2.

Institutional Controls

The groundwater treatment facility and the contaminated areas are surrounded by a fence with a security gate. The security gate restricts access to the facility and the contaminated groundwater. Warning signs are posted to warn would be trespassers of the hazardous nature of the Site.

V. Progress Since the Last Review

This is the third five-year review for the Site. The previous five-year review report found the implemented remedies protective.

Since the last review, the PRP Group has made several improvements and upgrades to the groundwater treatment process. In 2009, the PRPs replaced the polymer feed system to control the amount of polymer entering the clarifier. In addition, the PRPs replaced the mixer in the pH adjustment tank to better control the pH in the tank and in the system. The air compressor was refurbished which improved its reliability and reduced plant shutdown and compressor maintenance. Also, the PRPs have replaced the effluent tank mixer to provide for a more consistent control of the effluent pH. Further, the PRP Group has implemented a comprehensive annual preventive maintenance program that together with the current O&M Plan should maximize the rate of groundwater flow extracted from groundwater recovery wells. The program includes the annual cleaning, inspecting, replacements of well risers and pumps, and mechanically cleaning of influent piping to the groundwater treatment plant.

The second five-year review indicated that the groundwater sampling did not appear to be comprehensive enough to show the current status of the groundwater conditions throughout the Site. To this end, the five-year review recommended a comprehensive groundwater, surface water, sediment sampling event at the Site. Samples were to be collected from all groundwater monitoring and recovery wells in the shallow, intermediate and deep aquifers. The resultant data were to be used to evaluate the current status of the groundwater contamination, and to determine the need for any modifications to the extraction system. The results of this evaluation would be used to revise the Operation and Maintenance Plan for the Site.

In October 2005, EPA requested that the PRP Group conduct a comprehensive groundwater, surface water, and sediment sampling event at the Site. Specifically, EPA required the PRPs to collect groundwater samples from all monitoring and recovery wells, including the collection sediment and surface water from three locations along the Great Egg Harbor River. The samples were collected in 2006 and a report summarizing the data was submitted to EPA in 2007.

EPA reviewed the data from this sampling event and was concerned that proper quality assurance and quality controls (QA/QC) measures were not adhered during the 2006 sampling event. As a result, no conclusions could be made regarding the status of the groundwater contamination and the need, if any, to modify the pump and treat system. In 2009, EPA requested that the PRPs conduct another comprehensive groundwater, surface water, and sediment sampling event at the Site. In addition, EPA required the PRPs to take all appropriate actions to ensure that proper QA/QC procedures were adhered to during the sampling event. The second comprehensive groundwater, surface water and sediment sampling event was completed in June 2010.

VI. Five-Year Review Process

Administrative Components:

The King of Prussia Five-Year Review Team was led by Trevor Anderson, the EPA Remedial Project Manager (RPM) and included Charles Nace and Marc Yalom of the EPA Technical Support Team who assisted in the document review and Site inspection. Charles Nace evaluated the ROD cleanup standards to identify any changes in standards and To-Be-Considered criteria, while Marc Yalom reviewed the groundwater data.

The review components include:

- Community Involvement;
- Document Review;
- Data Review;
- Site Inspection;
- Local Interview, and;
- Five-Year Review Report Development and Review

Community Notification and Involvement:

The EPA Community Relation Coordinator for the King of Prussia Superfund Site, Patricia Seppi, published a notice in the Hammonton News, the area newspaper, on June 30, 2010, notifying the community of the initiation of the five-year review process. The notice indicated that upon completion of the five-year review, the document would be available to the public at the following locations: the Camden County Public Library, 203 Laurel Road, Voorhees, NJ 08043, and the U.S. EPA Record Center, located at 290 Broadway, New York, N.Y. In addition, the notice included the RPM's name, address and telephone number for questions related to the five-year review process or the King of Prussia Superfund Site in general.

Document Review:

This third five-year review consisted of a review of the relevant documents including Operation and Maintenance records and Monitoring Data. Applicable ROD cleanup standards were reviewed as well as current groundwater cleanup standards. A list of documents reviewed can be found in Table 6.

Data Review:

Groundwater

Groundwater monitoring has been conducted at the Site since the late 1970's. The groundwater extraction and treatment system has been operating since 1995. In general, most contaminants were detected at their highest levels during the RI/FS phase of the cleanup and immediately following the completion of the construction of the extraction and treatment system.

Groundwater sampling is conducted to evaluate the contaminant concentrations near the downgradient infiltration galleries and to evaluate the change in contaminant concentrations with time at selected locations within the plume. Groundwater samples are analyzed for VOCs and metals, and water level measurements are obtained to determine groundwater flow directions. Groundwater samples are collected quarterly from five groundwater monitoring wells. Two monitoring wells are used as compliance monitoring wells to ensure compliance with ROD standards. These two wells provide data to demonstrate that groundwater quality downgradient of the recovery wells is such that natural surface-water quality is not impacted. The other three wells are used to monitor the migration of the groundwater plume. In addition, groundwater samples are collected annually from six additional monitoring wells. Annual sampling is conducted to more fully characterize the effectiveness of the pump-and-treatment system in reducing contaminant concentrations. The plant discharge is collected and analyzed quarterly to assure that discharge criteria are met. Groundwater monitoring reports are submitted to EPA on a quarterly basis. The PRPs are also required to submit annual groundwater monitoring report.

In addition, in June 2010, the PRP completed a comprehensive groundwater, surface water, and sediment sampling event at the Site. Groundwater samples were collected from 21 shallow, seven intermediate, and 11 deep groundwater monitoring and recovery wells. Sediment and surface water samples were also collected from three locations along the Great Egg Harbor River.

Analysis of the 2010 site-wide groundwater data indicates that the shallow and the intermediate aquifers of the Site are still contaminated. Volatile organic compounds and metals were detected in 13 shallow and two intermediate groundwater monitoring and recovery wells above New Jersey Ground Water Quality Standard (NJGWQS). However, three VOCs (benzene, toluene, and trans-1, 2-dichloroethene) that had been previously detected during the RI/FS were not detected in the groundwater. The data indicate that the groundwater treatment system is providing capture of metals and VOCs in Site groundwater as evidenced by the overall decreasing metals concentrations in the shallow aquifer and minimal exceedances of the metals NJGWQS in the intermediate and deep aquifers. The slight residual chromium and beryllium exceedances of the NJGWQS in the intermediate and deep aquifer (beryllium at 6.6 micrograms per liter ($\mu\text{g/L}$) in MW-2I, chromium at 72 $\mu\text{g/L}$ in MW-33I, and chromium at 63 $\mu\text{g/L}$ in MW-24D) are expected to dissipate over time with continued efficient operation of the system. In the shallow aquifer, the VOC contaminants of concern have not changed; exceedances of the VOC NJGWQS are limited primarily to PCE, TCE and 1,1,2,2-PCA; with one, slight estimated exceedance of the 1,1-DCA NJGWQS and one exceedance of the 1,1,1-TCA NJGWQS in MW- 40S (See Table 3). Figure 4 indicates that there continues to be improvement in groundwater quality since the overall trend for VOC influent to the treatment plant continues to decrease suggesting that the remedy is functioning as intended by the decision documents. The absence of any substantial contamination in the deep aquifer indicates that the groundwater contamination has not migrated to this aquifer.

No semi-volatile organic compounds (SVOCs) were detected in the groundwater at the Site. The bulk of VOCs contamination seems to be confined to the main Site which is enclosed by the fence. No potable drinking wells are located in the VOC and metal plumes.

Surface Water and Sediment - No site-related VOCs were detected in the surface water and sediment of the Great Egg Harbor River. Two site-related metals (chromium and copper) were detected in the sediment at concentrations well below the levels that were reported in the RI/FS which indicates that the concentrations of metals detected continue to pose only a minimal potential for adverse effects to aquatic receptors (See Table 4). Mercury was also detected in the sediment; however, no mercury was detected in the groundwater and surface water at the Site.

Although treatment plant discharge criteria were exceeded for Be (one month only) and a limited number of VOCs during the Spring 2010 (two months), reinjection to groundwater had no measureable impact on sediment or surface water. The only inorganic that exceeded the groundwater treatment plant discharge criterion was Be. No Be was found in sediment. Although some VOCs exceeded their respective criteria in the effluent samples, only low-level concentrations of 2-butanone (0.026 milligrams per kilogram [mg/kg]) and acetone (0.15 mg/kg), neither of which are contaminants of concern at this Site and both of which are common laboratory contaminants, were detected in one sediment sample at upstream location SD-01A. Sediments were also evaluated during the Remedial Investigation (RI) in 1988; however, only upstream and downstream locations were sampled and VOCs were not detected. The historical non-detect concentrations for VOCs in sediments along with the most recent analytical results indicate that VOCs are not present in sediments within the Great Egg Harbor River.

The surface water data indicate that any potential undetected discharge of groundwater to surface water has not impacted surface water quality. The sediment data indicate that sediment quality has improved since the RI was completed.

Site Inspection:

The Site was inspected on April 6, 2010 by Trevor Anderson, the EPA RPM, Charles Nace and Marc Yalom of the EPA Technical Support Team. The purpose of the Site inspection was to assess the protectiveness of the remedy and the working condition of the groundwater treatment plant. The fence and security gate, the soil covering the Site, and the monitoring and recovery wells were also inspected, as well as the infiltration trenches and galleries.

The inspection indicated that the groundwater treatment system was operating as intended by the ROD and the decision documents. The fencing, the soil covering, the monitoring and recovery wells were all in good working conditions. No significant evidence of flooding was observed during the Site inspection.

Areas outside the fence were also inspected. These areas of the Site contain several monitoring and recovery wells, the infiltration galleries, and the perforated manholes. The vaults housing the monitoring and recovery wells and the infiltration galleries were inspected. Evidence of vandalism was observed in several of the vaults. Although vault covers are secured with heavy duty deadbolt locks, vandals were able to break into the vaults. The vaults were inspected for damage to piping and instrumentation. No damage to piping or instrumentation was observed in the vaults housing the monitoring and recovery wells. However, damage to piping and instrumentation was observed in the infiltration gallery vaults. The polyvinyl chloride (PVC) piping in these vaults was destroyed

by vandals. Since the treatment plant was still discharging treated water to the galleries, the vaults were overflowing. This prompted the PRP representative to divert all treated water from the infiltration galleries to the on-site infiltration trenches. On April 7, 2010, the PRPs reported that the PVC piping was repaired and all damaged deadbolt locks on the vault covers were replaced.

Currently, the PRPs are in the process of replacing all vault covers. The new vault covers will be steel plated. The steel-plated covers will be fastened to the top of the vault using eight internally mounted L-brackets. The brackets will be flushed with the top of the vault walls. The steel-plated covers will rest on both the top face of the vault wall and the L-brackets. They will be designed to prevent any would be vandals from prying open the vault covers. Bolts with irregularly pentagonal heads will be used to fasten the covers to the L-brackets so that a special tool will be needed to remove the bolts. The steel-plated covers will be painted for protection from corrosion. The PRPs expect to replace all vault covers by October 2010.

Interviews:

On April 6, 2010, interviews were conducted with representatives from the PRP Group, including Leo Brausch, the Site coordinator for the PRP Group, Tom Patterson, of Roux Associates, a contractor for the PRP Group, and Rocco Maiellano, the Licensed Plant Operator, were interviewed. No significant problems regarding Site operations were identified during these interviews.

VII. Remedy Assessment

Question A: Is the remedy functioning as intended by the decision documents?

The review of documents, ARARs, and the results of the Site inspection indicate that the remedies for the Site are functioning as intended by the RODs. The Site has three operable units. The remedy for OU1 required the on-site treatment of soils to meet criteria referenced in the 1990 ROD. The soil treatment technology reduced the contaminant concentrations to levels below the criteria listed in the ROD. The remedy for OU1 functioned as intended. OU2 involved excavation of contaminated soil from the Former Buried Drum Area of the Site with off-site disposal. Since soil was removed to levels that are protective of human health, the environment, and groundwater impacts, the remedy for OU2 functioned as intended. OU3 involves extraction, treatment and reinjection of the treated groundwater. The groundwater treatment system is part of a long-term remedy that is still in operation. Recent groundwater sampling data indicate that the system continues to reduce the levels of contaminants found in the groundwater. Contaminants of concern, such as benzene, toluene, and trans-1, 2-dichloroethene, are no longer detected in the aquifers. In addition, no site-related VOC contaminants were detected in the surface water of the Great Egg Harbor River, which is an indication that the treatment system is preventing the migration of the VOC contaminants to the river. Chromium, copper, and mercury were detected in the sediment in the river; however, their concentrations were below the levels detected during the RI/FS (See Table 3). The groundwater extraction, treatment and reinjection system should continue to operate until groundwater has been restored to drinking water standards. As a result, EPA has concluded that the remedy for OU3 is functioning as intended by the decision documents.

Although the remedy is functioning as intended by the ROD, there are opportunities for system optimization and modifications of the O&M plan for the Site. Following the completion of its review of all data collected during the 2010 site-wide comprehensive sampling event, EPA will evaluate various options for optimizing the system and for modifying the O&M plan for the Site.

Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives (RAOs) used at the time of remedy selection still valid?

Exposure Assumptions and Toxicity Data

The previous five-year review evaluated the exposure assumptions and toxicity data and indicated that the exposure assumptions and toxicity data were still valid. The exposure assumptions and toxicity data were reviewed as part of this five-year review and they remain valid at this time.

Cleanup Levels

The cleanup goals as identified in the 1990 ROD and in the 1995 ROD were compared to current cleanup values (New Jersey Residential Direct Contact Health-Based Criteria and Soil Remediation Standards (NJRCHBCSRS) and/or state and federal drinking water standards) (see Table 5). One compound in soil, arsenic, had a cleanup goal listed in the 1990 ROD that is above the current concentration listed for NJRDCHBCSRS. The cleanup goal in the ROD was identified as 190 mg/kg and the current NJRDCHBCSRS is 19 mg/kg. The EPA health-based value for residential exposure to arsenic in soil ranges from 0.39 to 390 mg/kg. The ROD value of 190 mg/kg is below 390 mg/kg, a 10^{-4} value; however, the cleanup goal is still considered to be valid and protective of public health as it is within the acceptable risk range. Arsenic concentrations in Site soils are significantly lower than the cleanup goal and the remote location of the Site makes residential development highly unlikely. Two compounds found in groundwater, 1,2-dichloroethane and 1,1,2,2-tetrachloroethane, had cleanup goals listed in the 1990 ROD that are above the current concentrations listed for federal or state drinking water standards. However, both compounds have cleanup values that are within the acceptable risk range for ingestion of tap water. Therefore, both cleanup values are considered to be valid and protective of public health. Additionally, there are no potable water supplies utilizing the groundwater as a drinking water source and, consequently, there is no exposure to the groundwater.

Remedial Action Objectives

The remedial action objectives as described in the RI/FS were to remediate the soils as part of OU1 and OU2 through either treatment or excavation and off-site disposal. The objective of OU3 was remediation of the contaminated groundwater through extraction, treatment and reinjection. The goals for OU1 and OU2 have been met and are still valid. The goal for OU3 is currently ongoing and remains valid.

Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

No other information has come to light that could call into question the protectiveness of the remedy.

Technical Assessment Summary

According to the data reviewed, the Site inspection, and interviews, the remedies are functioning as intended by the 1990 and the 1995 RODs. The fence is intact, in good condition, and is preventing inappropriate access to the Site. Groundwater monitoring wells which have been in use are in good working condition and functional. There are no drinking water wells within the contaminated plume. There have been no changes in the physical conditions of the Site that would affect the protectiveness of the remedy.

VIII. Recommendations and Follow-up Actions

This report did not identify any issue or make any recommendation for the protection of human health and/or the environment which was not included or anticipated by the decision documents for the Site. The groundwater remedy (OU3) is subject to periodic assessment which may lead to modifications to improve effectiveness and efficiency. There are no new recommendations or follow-up actions associated with this review.

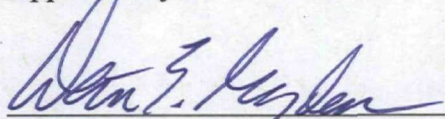
IX. Protectiveness Statement(s)

The remedies implemented for all OUs at the King of Prussia Superfund Site are protective of human health and the environment. Exposure pathways with unacceptable risks have been interrupted and no exposures to Site contaminants are expected as long as the engineering and access controls discussed in this report continue to be properly operated, monitored, and maintained.

X. Next Review

The next five-year review for King of Prussia Superfund Site will be completed before September 2015, five years after the date of this review.

Approved by:



Walter E. Mugdan, Director
Emergency and Remedial Response Division
EPA – Region II

9/24/2010

Date

TABLES

Table 1 - Chronology of Site Events

Events	Date
Operation of the waste recycling facility began.	1971
Waste recycling operation ceases and the Site was abandoned.	1973-1974
NJDEP was notified of waste recycling activities.	1975
NJDEP inspected and collected groundwater samples at the Site.	1976
The Site was placed on the National Priorities List.	1985
Remedial Investigation/Feasibility Study (RI/FS) began.	1985
Buried drums and plastic containers were excavated and removed from the Site.	1989
RI/FS and Supplemental Feasibility Study (SFS) were issued to the public.	1990
EPA issued a Record of Decision (ROD) for the Site to address soils, groundwater, and buried drums.	1990
Potentially Responsible Parties signed an Administrative Order to complete the remedial activities described in the ROD.	1991
The removal of buried drums from the Former Buried Drum Area was completed by EPA under a removal action.	1991
EPA removed the tankers and their contents from the Site.	1991
Contaminated soil associated with the tankers area was removed and treated by soil washing. Approximately 19,200 tons of metal contaminated soil were removed and treated by the PRP.	1993
Focused Feasibility Study to address the contaminated soil in the Former Buried Drum Area was completed by the PRPs. Soil removal was selected.	1993
The PRPs completed the removal of the soil from the Former Buried Drum Area of the Site.	1994
EPA approved the Remedial Design Report for the groundwater treatment system.	1994
EPA issued a No Further Action ROD for the Former Buried Drum Area.	1995
Operation of the groundwater treatment plant began.	1995
EPA completed First Five-year Review	2000
EPA completed Second Five-year Review	2005

Table 2: Annual System O&M Costs

Dates		Total Costs rounded to nearest \$1,000
From	To	
2005	2006	\$334,000
2006	2007	\$643,000
2007	2008	\$485,000
2008	2009	\$534,000
2009	2010	\$529,000

Table 3 - 2010 Site-Wide Data Collection Event – VOC and Metals Groundwater Analytical Results Exceeding Standard

Volatile Organic Compounds	ROD Level	Class II-A	MW-1S	MW-2I	MW-3S	MW-5S	MW-24D	MW-27S	MW-27Dup	MW-33I	MW-39-S	MW40-S	R1	R2	R3	R4	R5	R6	R-6 Dup
1,1,1-Trichloroethane	26	30										170							
1,1,2,2-Tetrachloroethane	1.4	1.0				39						2.7	5.7		2.5	36		9.3	8.4
1,1-Dichloroethane	2	2.0										2.9J							
Ethylbenzene	50	700										120							
Tetrachloroethene	1.0	1.0				20				7.5	9.1	11	140	12	2	16		2.3	2.5
Trichloroethene	1.0	1.0	2.4			63				2.1	2.4	16	53		4.4	23		10	11
Metals Ground Water Analytical Results																			
Beryllium	4	1.0	7.7	6.6	19	35				5.1			18	14	13	14	15	7.2	7.3
Chromium	50	70					63	67	57	72				79					
Copper	1000	1300				1200											1100		
Lead	-	5.0	6.3																
Nickel	210 - 100				270	230											250		
All data reported in ug/L (ppb) J= estimated value																			

Table 4. Great Egg Harbor River Sediment Quality Comparison NJ DEP Ecological Screening Criteria, Remedial Investigation (RI) Maximum Value and 2010 Maximum Value

Site-related contaminant Detected (1)	NJDEP Ecological Screening Level (Lower Effects Level – Severe Effects Level) mg/kg	RI Maximum Concentration (mg/kg)(2)	2010 Sampling Maximum Concentration (mg/kg)
Chromium	43.4-110	131	57
Copper	36-110	199	47

(1) Lead was detected in one of a duplicate pair of samples from the upstream sediment sampling location and is not related to groundwater discharges from the KOP Site. Mercury was detected in the sediments proximal to and downstream of the KOP Site. Mercury was not found in river sediments in RI sampling and is not detectable in Site groundwater. The downstream concentration (0.21 mg/kg) is comparable to average background values (Rice, 1999) and generally equivalent to commonly applied ESVs (MacDonald, et al., 2000; Buchman, 2008). The presence of mercury in Great Egg Harbor River sediments is likely not related to the KOP Site. Beryllium was not detected in any of the three sediment samples. Iron and Aluminum are present in sediment but are not site-related.

(2) Page 178 Final Endangerment Assessment – Volume 1 of 3 King of Prussia Technical Corporation Site, Camden County, NJ 1989 concludes: “The concentrations of metals detected suggest a minimal potential for adverse effects to aquatic receptors, although definitive conclusions cannot be made.”.

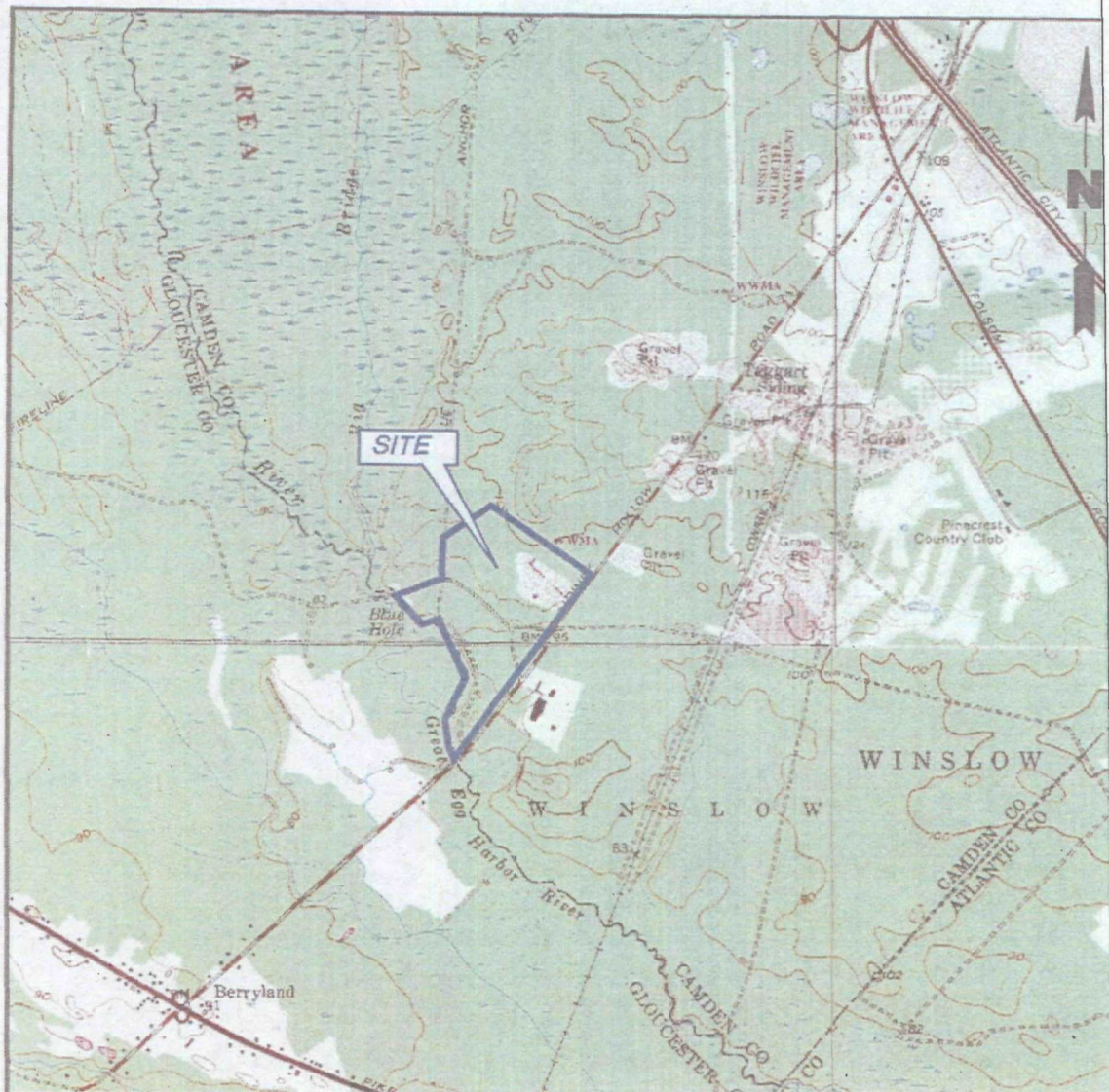
Table 5: List of Standards Reviewed

Medium/Authority	ARARs/TBC	Requirement Synopsis
Groundwater/Safe Drinking Water Act, 1976, Amended 1986 and 1996	Federal - SDWA - Maximum Contaminant Levels (MCLs) (40 CFR Part 141.11-141.16) and non-zero Maximum Contaminant Levels Goals (MCLGs)	Standards (MCLs) have been adopted as enforceable standards for public drinking water systems: goals (MCLGs) are non-enforceable levels for such systems.
Groundwater/Clean Water Act (CWA), 1993	New Jersey State Department of Environmental Protection (NJDEP) - Groundwater Quality Standards (N.J.A.C. 7:9-6)	State groundwater quality standards have been promulgated for a number of contaminants. When the state levels are more stringent than federal levels, the state levels will be used.
Soil	New Jersey Department of Environmental Protection (NJDEP - Residential Direct Contact Health-Based Criteria and Soil Remediation Standards (NJRDCHBCSRS) (N.J.A.C. 7:26D)	

Table 6: List of Document Reviewed

1. Five-Year Review Report for the King of Prussia Superfund Site - September 2000
2. Second Five-Year Review Report for the King of Prussia Superfund Site – September 2005
3. Record of Decision for the King of Prussia Superfund Site - September 1990
4. Record of Decision for the King of Prussia Superfund Site - September 1995
5. Administrative Order for the King of Prussia Superfund Site - April 1985
6. Administrative Order for the King of Prussia Superfund Site - July 1989
7. In-situ Chemical Oxidation Pilot Test Report - September 2001
8. In-situ Chemical Oxidation Phase 2 Remediation Summary Report - September 2003
9. Groundwater Treatment Plant Report from 2005 - 2010

Figures



2,000' 0' 2,000'



QUADRANGLE LOCATION

SOURCE

- 1.) U.S.G.S. WILLIAMSTOWN, HAMMONTON, BUENA, NEWTONVILLE QUADRANGLES, NEW JERSEY, 7.5 MINUTES SERIES (TOPOGRAPHIC) PHOTOREVISED 1970, 1971, AND 1981.

Title:

SITE LOCATION MAP

KING OF PRUSSIA TECHNICAL CORPORATION SUPERFUND SITE
WINSLOW TOWNSHIP, CAMDEN COUNTY, NEW JERSEY

Prepared For:

KOP SUPERFUND SITE PRP GROUP

ROUX

ROUX ASSOCIATES, INC.
Environmental Consulting
& Management

Compiled by: JB

Date: 12/22/09

FIGURE

Prepared by: AID

Scale: AS SHOWN

Project Mgr: TP

Officer: NJ

File No: 1888.0001.0000.1000.01

Project: 1888.0001.0000

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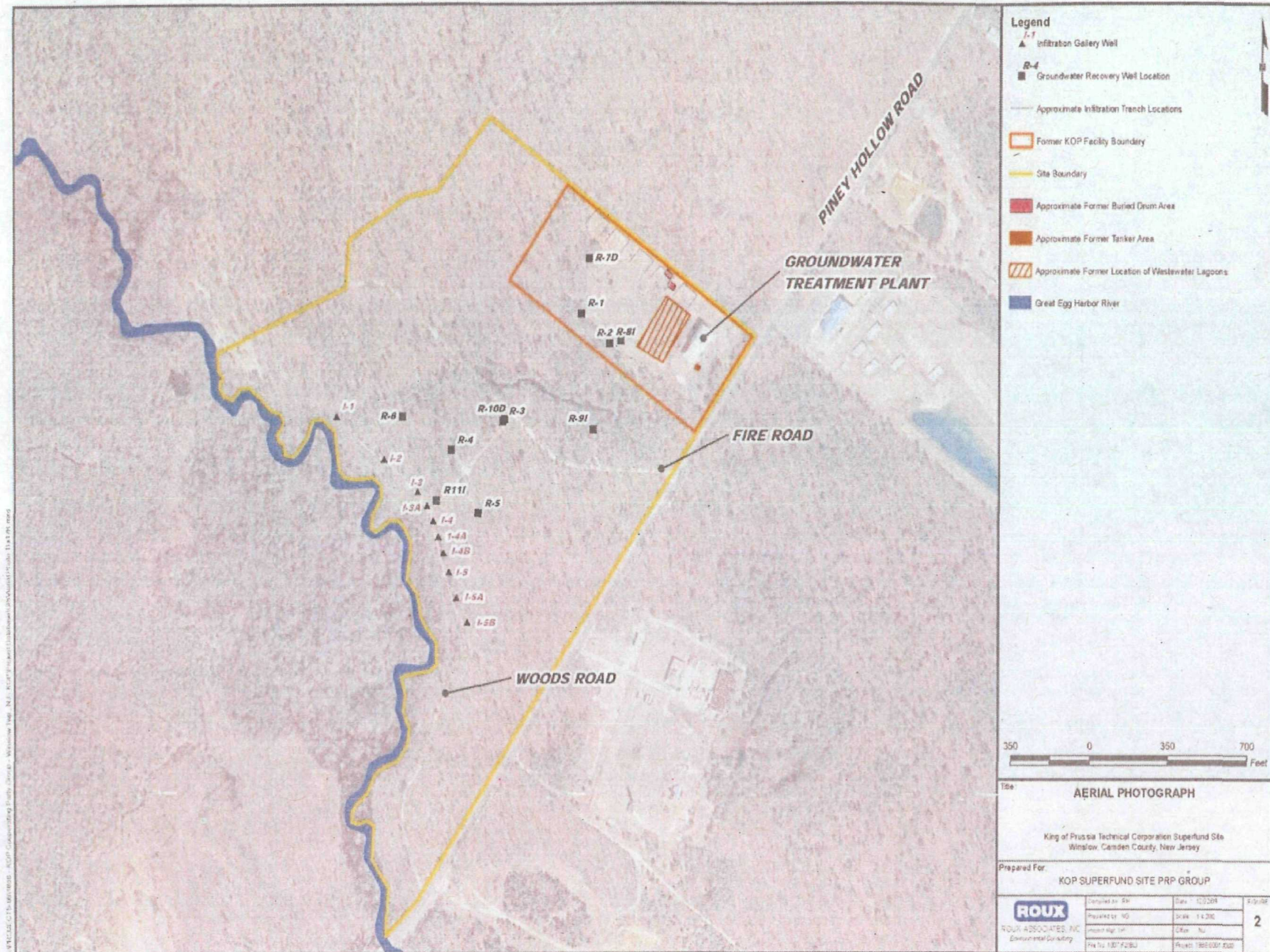


Figure 3: Monitoring and Recovery Wells Locations

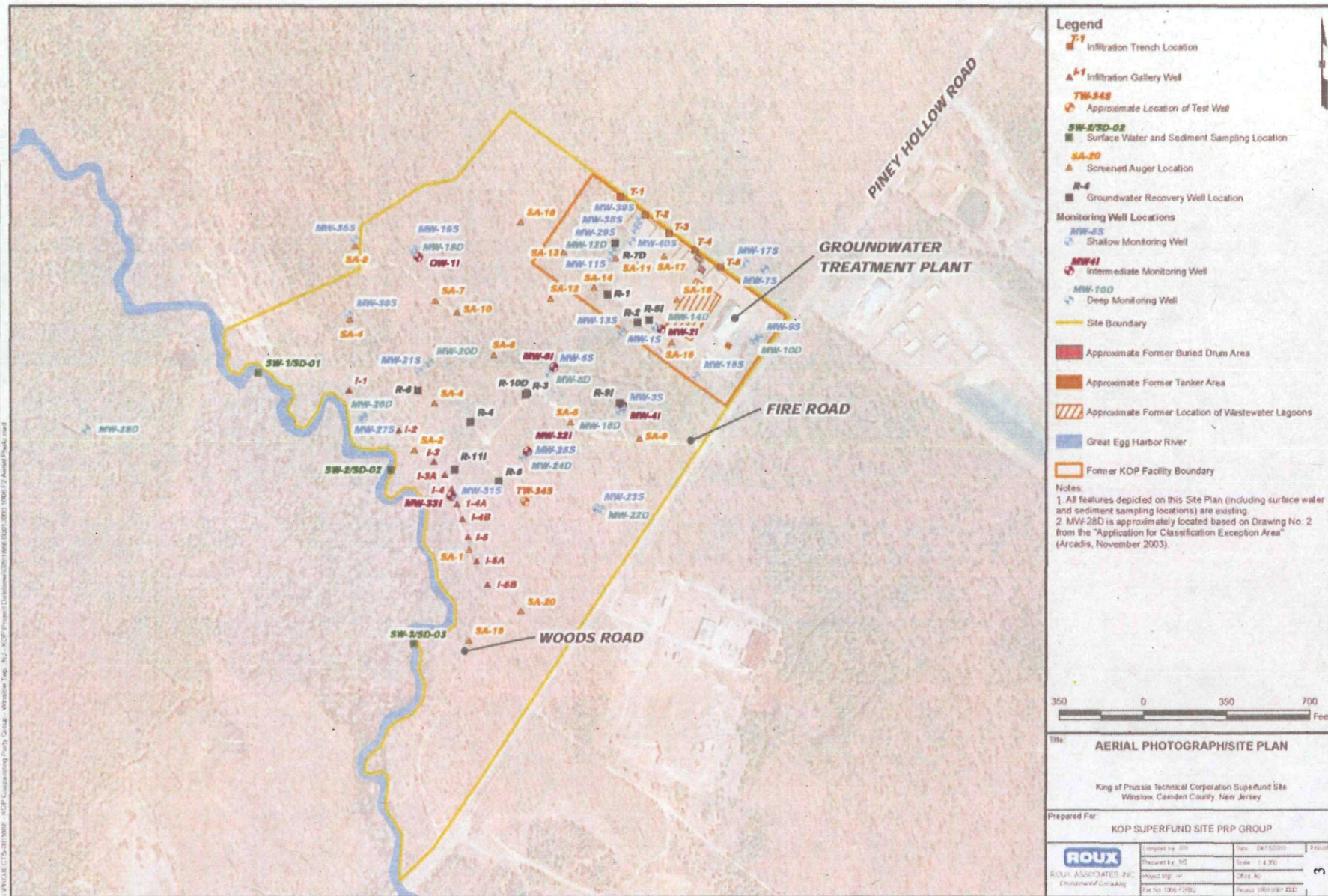
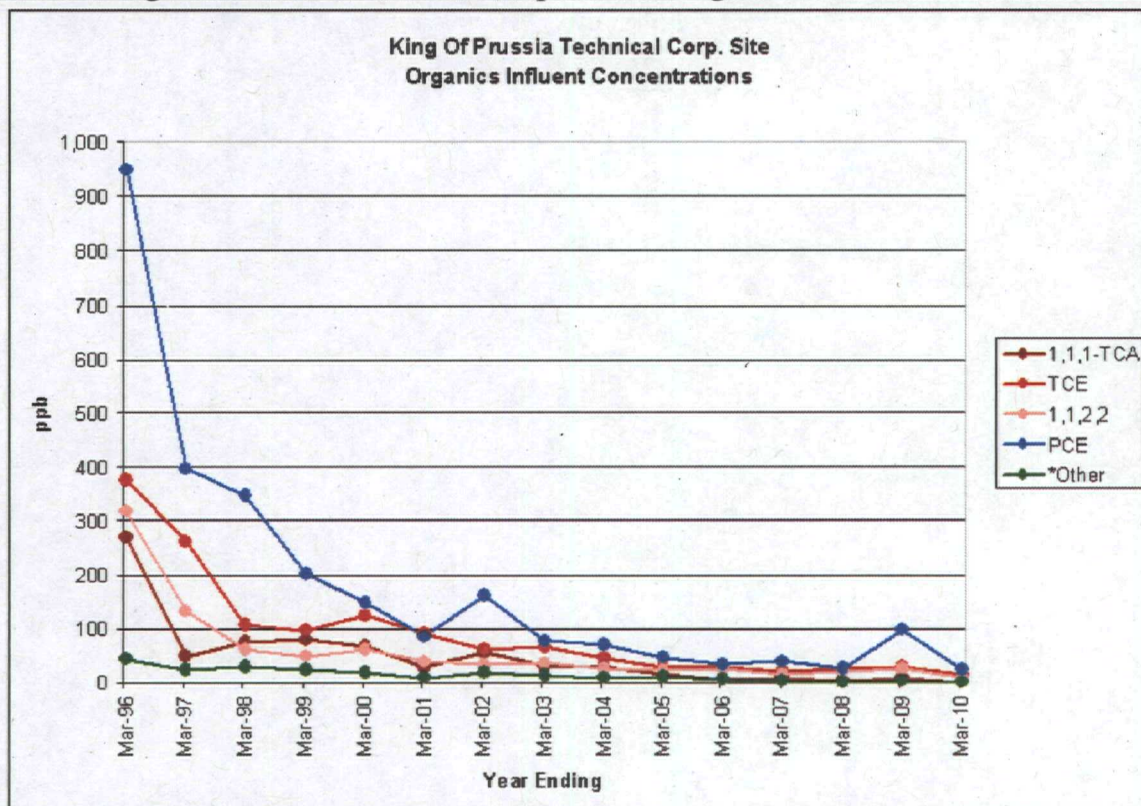


Figure 4: King of Prussia Technical Corp. Site – Organics Influent Concentrations



List of Acronyms

ARAR	Applicable or Relevant and Appropriate Requirement
CAMU	Corrective Action Management Unit
CD	Consent Decree
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
EPA	United States Environmental Protection Agency
CFR	Code of Federal Regulations
ESD	Explanation of Significant Difference
NJDEP	New Jersey Department of Environmental Protection
MII	Morton International Inc., a Rohm & Haas Company
MCL	Maximum Contaminant Level
MCLG	Maximum Contaminant Level Goal
NCP	National Contingency Plan
NPL	National Priorities List
O&M	Operation and Maintenance
PAH	Polyaromatic Hydrocarbon
PCB	Polychlorinated Biphenyl
PRP	Potentially Responsible Party
RA	Remedial Action
RAO	Remedial Action Objective
RD	Remedial Design
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
SARA	Superfund Amendments & Reauthorization Act
SDWA	Safe Drinking Water Act
VOC	Volatile Organic Compound